COMPRESSED EVENT COUNTING TECHNIQUE
AND APPLICATION TO A FLASH MEMORY SYSTEM

ABSTRACT OF THE DISCLOSURE

A non-volatile flash memory system counts the occurrences of an event, such as the number of times that individual blocks have been erased and rewritten, by updating a compressed count only once for the occurrence of a large number of such events. A random or pseudo-random number generator outputs a new number in response to individual occurrences of the event, and updates the compressed count when an output of the random number generator matches a predetermined number. The probability of the predetermined number being generated by the random number generator in response to a single event may be varied as the function of some other factor, such as the value of the compressed count, when that provides more useful tracking of the number of events. These techniques also have application to monitoring other types of recurring events in flash memory systems or in other types of electronic systems.